

REMARKS/ARGUMENTS

In the Office Action, the Examiner noted that claims 1-54 are pending in the application. The Examiner additionally stated that claims 1-54 are rejected. By this amendment, claims 1, 26, 36, 45, 46 have been amended. Hence, claims 1-54 are pending in the application.

Applicant hereby requests further examination and reconsideration of the application, in view of the foregoing amendments.

In the Specification

The examiner indicated that the specification is objected to as failing to provide proper antecedent basis for the claimed subject matter of “ATA controller” in claim 45. Applicant submits that what is referenced in claim 45 is a “serial ATA controller”, which is supported in the specification as SATA. However, applicant has amended claim 45 to

In the Claims

Rejections Under 35 U.S.C. §101

The Examiner rejected claims 1-25 under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A “packet”, according to the examiner, is a data structure which is clearly non-statutory. Applicant respectfully traverses.

A packet exists, at a point in time, as a real physical item, in a buffer, in a network interface controller, in memory, etc. If it were not physical, applicant respectfully suggests that the examiner would not be able to communicate over the network at the patent office, because his computer is utilizing packets, transferred to and from his computer, to the PTO computer network. That said, applicant has amended claim 1 to particularly indicate that the packet is stored in memory. Such structure has already been held to be statutory subject matter. See *In re Lowrey* 32 F.3d 1579 (Fed. Cir. 1994). Applicant further suggests that the amendment to claim 1 does not require an additional search by the Examiner which would justify issuing a Final Rejection. That is, the subject matter of claim 1, as amended, was before the examiner as originally filed.

The Examiner further rejected claims 26-35 under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. An "OS domain header", according to the examiner, is a data structure which is clearly non-statutory. Applicant respectfully traverses for the same reason as stated above with respect to claims 1-25. However, applicant has amended claim 26 to clearly specify that the PCI Express Packet is stored in a bus interface (see Figure 13, element 1304). Applicant respectfully submits that the OS Domain header, within a PCI Express Packet, stored in a bus interface, is statutory subject matter, as well as novel subject matter. A description of the OS Domain header is found in well over 100 instances of the present application. Therefore, the amendment to claim 26, although clearly statutory, should not necessitate a new search by the examiner.

Rejections Under 35 U.S.C. §103(a)

The Examiner rejected claims 36-39, 41-44, 46-49, 51-54 under 35 U.S.C. 103(a) as being unpatentable over Franke et al (2004/0117536) in view of Beck et al (6,665,304). Applicant respectfully traverses the Examiner's rejections.

With respect to claim 36, the examiner indicated that Franke discloses a method and a system to allow multiple root complexes (processor blades) to share (I/O) endpoints (see figure 9; paragraphs 0063-0065). Applicant respectfully disagrees. Applicant would like to point out that what is being "shared" by the processor blades in Franke are Ethernet Switches. Ethernet switches are devices which are NOT part of the load/store fabric of the processor blades. Rather, they are devices which, in Franke, cannot be mapped into the load/store architecture of the processor blades, nor can they be utilized by the processor blades via load/store instructions. They simply receive Ethernet packets (which are NOT part of the load/store fabric of the processor blades), and switch the Ethernet packets according to prior art TCP/IP protocols.

Further, applicant would appreciate the examiner studying Figure 9 of Franke, in comparison with Figure's 1 and 2 of applicant's specification. More specifically, applicant has shown, in Figure's 1 and 2, embodiments very similar to what is described in Franke. That is, applicant has shown multiple root complexes which are all attached to shared switches. However, what should be appreciated in Figure's 1 and 2, is that each

of the root complexes contain Ethernet, Fiber channel, and other interface controllers, 210, 212, 214 to allow the root complexes to connect to the switches. See applicant's paragraph [0066]. These controllers ARE part of the load/store fabric of the root complexes, and may be individually addressed by load/store instructions originating in the root complexes. Franke also shows each of his processor blades PB14 to contain a Dual Ethernet serial Gb intf, and a daughter card. That is, Franke shows a network interface controller on each of his blades, for communication to a downstream network, similarly to what applicant has described in Figure's 1 and 2. Applicant considers all of this prior art.

Applicant would now direct the examiner's attention to Figure 4 of applicant's specification. In Figure 4, in a departure from the prior art, and from Franke, what is shown are a number of "endpoints" 440, 442, 444 which ARE part of the load/store fabric of the blades 408, 406, 404, and which are shared by the root complexes. What is important to understand is that applicant has provided a solution to allow all of Franke's processor blades to utilize/share the same "dual Ethernet serial Gb intf", without requiring such to be placed on each of his blades. Nothing in Franke appreciates this novel feature. Nothing in Franke is directed at allowing endpoints within a load/store fabric to be shared by multiple root complexes. Such a novel method is taught at length in applicant's specification, particularly at paragraphs [0075]-[0078]. Applicant has thoroughly searched Franke, and believes he understands Franke's invention. Applicant submits that nothing in Franke teaches, suggests, or even hints at the novel feature of sharing i/o endpoints within a load/store fabric of multiple root complexes. For all of these reasons, applicant respectfully requests the examiner withdraw his rejection of these claims.

Further, the examiner indicates that Beck discloses the use of a field for inclusion in the packet to identify the root complex for the packet (see figure 3, col. 4, lines 23-28; col. 4, line 61-col. 5, line 14; col. 5, line 46-col. 6, line 6). Applicant respectfully traverses. Everything in Beck is directed at a computer network that is NOT part of the load/store fabric of a root complex. What Beck is teaching is tacking on processor node information on top of TCP port numbers, all outside of the load/store fabric for each of

the processor nodes. Such teaching DOES NOT allow each of Beck's processor nodes to share an Ethernet controller (i.e., endpoint), for example. Rather, what Beck specifically shows in Figure 2 is each processor node (10a-10c) with their own dedicated network interface (20a-20c). If Beck had any thought of sharing endpoints within a load/store fabric, as taught by applicant, all three of his processor nodes (10a-10c) would be sharing a single network interface 20a. However, such teaching is not appreciated by Beck. Thus, Beck simply provides (as was presumed in the art prior to applicant's invention) that each processor node requires its own load/store controller to interface it to a non load/store fabric (Ethernet).

Applicant has specifically recited, in claim 36, that the packet identifies a root complex within a load/store fabric to allow sharing of i/o endpoints within the load/store fabric. Such teaching is nowhere taught, suggested, or even hinted at by Franke, taken alone or in combination with Beck. For all of the above reasons, applicant respectfully requests the examiner to withdraw his rejection of these claims.

All other rejections presented by the examiner are based on an a presumption that what is taught by Franke, taken alone or in combination with Beck, is addressed at the sharing of endpoints by multiple root complexes, within the load/store fabric of each of the root complexes. However, as explained above, everything that is taught by Franke/ Beck is outside the load/store fabric of their processor (nodes), and as such does not allow sharing of endpoints inside the load/store fabric of root complexes. For this reason, applicant respectfully requests that the examiner withdraw the other rejections.

CONCLUSIONS

In view of the arguments advanced above, Applicant respectfully submits that claims 1-54 are in condition for allowance. Reconsideration of the rejections is requested, and allowance of the claims is solicited.

Applicant earnestly requests that the Examiner contact the undersigned practitioner by telephone if the Examiner has any questions or suggestions concerning this amendment, the application, or allowance of any claims thereof.

Respectfully submitted,
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